REMARKS

In the Office Action, the Examiner noted that claims 1-20 are pending in the application, claims 1-20 stand rejected.

Rejection under 35 USC §102

Claims 1-4 and 6-19 were rejected under 35 USC §102 as being anticipated by Jiang et al (US Pat No 6,011,307). The Applicants respectfully submit that the Examiner has not established a prima facie case of anticipation with respect to any of the Claims.

Claims 1-4 and 6 to a composite sheet material are not anticipated by Jiang et al. With respect to Claim 1, Jiang et al. does not provide for a flexible compliant matrix with electrically conductive elements, which are arranged and organized into columns that are essentially organized into a non-random pattern with a majority of these columns oriented at angles less than about 90° and greater than about 15° to the lower surface of the composite sheet material. Instead, Jiange et al. teaches a composite material with apparently random electrically conductive elements, which is deposited by screen printing or spraying onto an electric component, and where the electrically conductive elements when oriented are oriented essentially at angles of 90° to the lower surface, see Jiang et al's Figures 7-10, 15-20 and 24-26. With respect to Claim 2, Jiang et al. does not teach or suggest the use of a composite sheet material wherein the tensile modulus @ 100% elongation is less than about 5000 psi, but rather teaches the use of rather rigid thermoset and thermoplastic materials with high modulus' of elasticity. With respect to Claim 3, Jiang et al. does not teach the use of an elastomer as the matrix, but rather suggests the use of other less flexible materials which are necessary to meet the physical needs of materials used as electrical connectors for electronic applications. With respect to Claim 4, the Applicant repeats and reiterates his previous comments. With respect to Claim 6, Jiang et al. does not provide for a flexible compliant matrix with electrically conductive elements, which are arranged and organized into columns that are essentially organized into a non-random pattern with a majority of these columns oriented at angles less than about 90° and greater than about 45° to the lower surface of the composite sheet

material. Instead, Jiange et al. teaches a composite material with apparently random electrically conductive elements, which is deposited by screen printing or spraying onto an electric component, and where the electrically conductive elements when magnetically oriented are oriented essentially at angles of 90° to the lower surface, see Jiang et al's Figures 7-10, 15-20 and 24-26.

Claims 7-13 to a method of producing a composite sheet material are further not anticipated by Jiang et al. With respect to Claim 7, Jiang et al. does not teach a method or a process with any of the claimed steps. First, for molding such a material in a mold with a region of defined curvature, or second, for aligning such a material while still in the mold. In addition, the material in Jiang et al. does not provide for a flexible compliant matrix with electrically conductive elements, which are arranged and organized into columns that are essentially organized into a non-random pattern with a majority of these columns oriented at angles less than about 90° and greater than about 15° to the lower surface of the composite sheet material for the reasons stated above. With respect to Claims 8-11 and 13, the Applicant repeats and reiterates his previous comments. With respect to Claim 12, in addition to the Applicant's previous comments, Jiang et al. does not teach the additional step of flattening the molded composite sheet material, and applying at least one contact layer to one of the surfaces

Claims 14-19 to a sensor for monitoring lateral or shear forces are still further not anticipated by Jiang et al. With respect to Claim 14, Jiang et al. does not teach a sensor, but rather describes a material to electrically contact two electrical components. Furthermore, the material in Jiang et al. can not be used to monitor lateral or shear forces and the electrical properties of the material described in Jiang et al. would not change measurably with respect to the amount of lateral and shear forces applied to the material. With respect to Claims 15-17, in addition to the above comments Jiang et al. does not teach a contact layer which is either formed from multiple conductive lines, two conductive triangular patterns, or two irregular, conductive triangular patterns. With respect to Claim 18, Jiang et al. does not provide for a flexible compliant matrix with electrically conductive elements, which are arranged and organized into columns that are essentially organized into a non-random pattern with a majority of these columns oriented at angles less than about 90° and greater than about 45° to the lower surface of the

composite sheet material. Instead, Jiange et al. teaches a composite material with apparently random electrically conductive elements, which is deposited by screen printing or spraying onto an electric component, and where the electrically conductive elements when magnetically oriented are oriented essentially at angles of 90° to the lower surface, see Jiang et al's Figures 7-10, 15-20 and 24-26. With respect to Claim 19, in addition to the above comments, Jiang et al does not teach the use of an elastomer as the matrix, but rather suggests the use of other less flexible materials which are necessary to meet the physical needs of materials used as electrical connectors for electronic applications. Given the reasons set forth in this response, the Applicants respectfully request withdrawal of this rejection.

Rejections under 35 USC §103

Claims 5 and 20 were rejected under 35 USC §103 as being unpatentable over Jiang et al. in view of Kiraly (US Pat. No. 4,440,642). Again, the Applicants respectfully submit that the Examiner has not established a prima facie case of obviousness. With respect to Claim 5, in addition to the above comments with respect to Jiang et al., Kiraly describes the use of filaments (not discrete elements nor spherical conductive elements as claimed) in a piezoelectric (not an essentially non-conductive matrix as claimed) laminate. In addition the filaments in Kiraly appear to be oriented at essentially 0° in relation to the lower surface of the composite (not at between 15° and 90° as claimed). With respect to Claim 20, in addition to the above comments with respect to Jiang et al., Kiraly describes the use of filaments (not discrete elements nor spherical conductive elements as claimed) in a piezoelectric (not an essentially non-conductive matrix as claimed) laminate. Kiraly does not teach of a sensor comprising a composite material wherein the electrical properties of the composite sheet material change measurably with respect to the amount of lateral and shear forces applied to the material.

In addition to the above comments, the Applicants further submit that the Examiner has not given any reason, suggestion, or motivation in either Jiang et al. or Kiraly, or from these references cited as a whole for the person of ordinary skill to have combined or modified these references. The Applicants submit that obviousness cannot be established by combining the teachings of the prior art to produce the claimed

invention, absent some teaching suggestion or incentive supporting such combination. If such suggestion or incentive is in the references, the Applicants respectfully request that the Examiner particularly point out the relevant sections of those references cited which suggest or motivate his combination of those references. If the Examiner is alleging that a person of ordinary skill would have be motivated to combine such references, the Applicant respectfully submits that how a person of ordinary skill in the art would have been motivated must be in the personal knowledge of the Examiner, and therefore respectfully requests that the Examiner in his next Official Action submit an affidavit detailing as specifically as possible such motivation (see 37 CFR §1.104 (d) (2)). Given the reasons in this response, the Applicants respectfully request withdrawal of this rejection.

CONCLUSION

For all the above reasons the Applicants respectfully submit that the application is in condition for allowance and that action is earnestly solicited.

Respectfully submitted,

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Dated

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